REMARKS

Upon entry of the present amendment, claims 1-2 and 4 will remain pending in the above-identified application and stand ready for further action on the merits.

The instant amendment to the claims does not incorporate new matter into the application as originally filed, inasmuch as it simply inserts into claim 1 the limitations that were previously recited in claim 3 (which is now cancelled). For the same reason, the instant amendment to the claims does not introduce substantial new issues for the Examiner's consideration after final, as the Examiner had already considered prior claim 3, which depended from claim 1.

Because the instant amendment to the claims also serves to put the claims in condition for allowance, or alternatively, puts the claims in a better format for appeal to the USPTO Board of Patent Appeals and Interferences, it is submitted that entry of the instant amendment at present is both entirely acceptable and warranted under the provisions of 37 CFR § 1.116.

Claim Rejections Under 35 USC § 103(a)

Claims 1-2 and 4 have been rejected under 35 USC § 103(a) as being unpatentable over Davies et al. (EP 0 711 828).

Reconsideration and withdrawal of this rejection is respectfully requested based upon the following considerations.

The Present Invention and Its Advantages

In each of Applicants' independent claims 1-2, there is provided a solid-shaped detergent comprising particles for detergent. Each of the solid-shaped detergents of independent claims 1 and 2 is excellent in fast dissolubility being capable of quickly dissolving in water after supplying the same there into, and at the same time also possesses sufficient mechanical strength upon drying.

Notably, in each of claims 1-2, at the ends thereof, it is specifically stated as follows:

> *"...wherein said base particle is obtained by the steps comprising carrying out spray-drying of a slurry, and wherein said base particle has a water content of 10% by weight or less."*

Accordingly, based upon the above recitation occurring at the end of each of independent claims 1-2, it is clear that the base particles of the present invention are obtained by carrying out a spray-drying of a slurry.

Further, in each of claims 1-2, it is now also specifically stated that:

> *"...wherein said base particle has a localized structure in which larger amounts of the water-soluble polymer and/or the water-soluble salt are present near the surface of the base particle rather than in the inner portion thereof,"*

The above recitation in claims 1-2 is important, since page 29, line 9 to page 33, line 5 of the specification, clearly teaches that spray-drying allows the base particles of the invention to possess *a distinctive localized structure* of the components as is recited in claims 1-2. As such, the recited spray-drying of a slurry in the claims 1-2, results in base particles having a distinctive and advantageous localized structure (as is also recited in claims 1-2). Such a distinctive localized structure is completely different from that taught in the cited art of Davies EP '828.

Distinctions over the Cited Art

The Examiner cites Davies EP '828 as rendering obvious claims 1-2 and 4 of the present invention. However, it is submitted that in no way does the cited Davies EP '828 reference render obvious the present invention. Likewise, it is submitted that Davies does

not disclose or give any motivation to those of ordinary skill in the art to prepare spray-dried detergent granules containing a "water-insoluble inorganic compound" as recited in the present invention.

Davies may disclose detergent compositions that are compacted to form tablets, but Davies never teaches, discloses or suggests spray-dried base particles having a localized structure as recited in instant claims 1-2. Moreover, Davies EP '828 fails to mention any method of arriving at a base particle as recited in the present claims 1-2, having "*a localized structure in which larger amounts of the water-soluble polymer and/or the water-soluble salt are present near the surface of the base particle rather than in the inner portion thereof*".

In paragraph "4." of the office action the Examiner remarks as follows on product-by-process language utilized in pending claims 1-2:

> With respect to the obviousness rejection based upon Davies, Applicants argue that Davies may disclose detergent compositions that are compacted to form tablets, but the only examples and teachings given in Davies are to granulated products and Davies never teaches, discloses or suggests the use of spray-dried particles as a base particle, which is completely different from the present invention.
>
> The Examiner respectfully disagrees with the above arguments because the present claims are product-by-

> process claims, hence, any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the instant invention was made because where the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct, not the examiner to show the same process of making, see *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

However, Applicants note that the Manual of Patent Examining Procedure (MPEP) at § 2113 thereof, specifically provides as follows:

> The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.)

As such, the Examiner is respectfully requested to review page 29, line 9 to page 33, line 5 of the instant specification, wherein it is clearly shown that a distinctively unique and/or advantageous localized structure results from the use of spray-drying in the preparation of the base particles of the invention. For the Examiner's convenience, the above noted portion of the

specification at pages 29-33 is repeated below *(with some of the most relevant portions relating to spray-drying and the distinctive localized structure being italicized for the Examiner's additional convenience)*.

2.5. Process

The base particles and the detergent particles used in the present invention can be prepared by a process comprising the following steps (I) to (III):

(I): preparing a slurry comprising a water-insoluble inorganic compound, a water-soluble polymer, and a water-soluble salt, wherein 60% by weight or more of water-soluble components comprising the water-soluble polymer and the water-soluble salt are dissolved in the slurry;

(II): spray-drying the slurry obtained in Step (I) to prepare base particles; and

(III): adding a surfactant to the base particles obtained in Step (II), thereby supporting the surfactant to the base particles.

Moreover, in order to further improve the properties and quality of the resulting detergent particles, it is preferable to further add a surface-modifying step subsequent to Step (III). Preferred embodiments for each step will be described below.

2.5.1 Step (I) (Step for Preparation of Slurry)

The slurry used in the present invention may be preferably a slurry having a non-setting property which can be conveyed with a pump. Also, the addition method of the components and their order can be appropriately varied depending upon the preparation conditions. It is preferable that the content of the water-insoluble component (A) in the slurry is from 6 to 63% by weight, and the content of each of the water-soluble components (B, C) in the slurry is from 2.1 to 56% by weight.

In order that each of the base particles obtained in Step (II) has the localized structure of the components as described above, the water-soluble components (B, C) in Step (II) are needed to be migrated to the particle surface along with evaporation of moisture. In such case, the dissolution rates of the water-soluble components (B, C) in the slurry become important factors. In other words, it is necessary to prepare a

slurry in which the water-soluble components (B, C) are dissolved in an amount of 60% by weight or more, preferably 70% by weight or more, more preferably 85% by weight or more, still more preferably 90% by weight or more. In general, the water content necessary for preparing such a slurry is preferably from 30 to 70% by weight, more preferably from 35 to 60% by weight, most preferably from 40 to 55% by weight. When the water content is low, the water-soluble components (B, C) cannot be sufficiently dissolved in the slurry, and thereby the proportions of the water-soluble components (B, C) which are present near the surface of the resulting base particle are decreased. In addition, when the water content is too high, the water content needed to be evaporated in Step (II) becomes high, thereby lowering its productivity.

The measurement method of the dissolution rate of the water-soluble components (water-soluble polymer and water-soluble salts) in the slurry is as follows. The slurry is filtered under reduced pressure, and the water concentration (P %) in the filtrate is measured. The water content of the slurry is denoted as (Q %), and the concentration of the water-soluble components in the slurry is denoted as (R %). The dissolution rate of the water-soluble components is calculated by Equation (2):

$$\underset{(\%)}{\text{Dissolution Rate}} = \frac{Q(100-P)}{P} \times \frac{1}{R} \times 100$$

Here, when the calculated dissolution rate exceeds 100%, the dissolution rate is considered to be 100%.

A method for forming a slurry includes, for instance, a process comprising adding an entire amount or almost the entire amount of water to a mixing vessel at first, and in order or simultaneously adding the remaining components, preferably after a stage where a water temperature almost reaches an operable temperature. The usual order of addition comprises firstly adding liquid components such as a surfactant and a polyacrylate, and subsequently adding a water-soluble, powdery starting material such as soda ash. In addition, a small amount of the auxiliary components such as a dye is added. Finally, the water-insoluble component such as zeolite is added. At this time, for the purpose of improving blending efficiency, the water-insoluble component may be added in two or more separate portions. Also, the powdery starting materials may be previously blended, and the blended powder starting materials may then be added to an aqueous medium. Further, after the addition of the entire components, water may be added to adjust its viscosity or the water content of the slurry. After the addition of the entire components in the slurry, the components are blended for preferably 10 minutes or more, more preferably 30 minutes or more, to prepare a uniform slurry.

Also, the temperature of the slurry is preferably from 30° to 80° C., more preferably from 40° to 70° C. When the temperature of the slurry is in the above range, it is preferable from the aspects of the dissolubility of the water-soluble components (B, C) and the liquid conveyability thereof with a pump.

2.5.2 Step (II) (Step for Preparation of Base Particles)

As the drying method of the slurry, in order to allow the base particle to have pores capable of releasing a bubble of a desired size and also allow the base particle to have the localized structure of the components, it is preferable that the slurry is instantaneously dried, and particularly preferably is spray-dried to have the resulting particle shape which is substantially spherical. The spray-drying tower is more preferably a countercurrent tower, from the viewpoints of the improvements in the thermal efficiency and the particle strength of the base particles. The atomization device for the slurry is particularly preferably, for instance, a pressure spray nozzle.

The temperature of the high-temperature gas supplied to the drying tower is preferably from 150° to 300° C., more preferably from 170° to 250° C. In addition, it is preferable that the temperature of the gas exhausted from the drying tower is usually from 70° to 125° C., more preferably from 80° to 115° C.

Based on the above disclosure in the specification at pages 29-33, it is submitted that applicant's recitation in claims 1 and 2 of a base particle:

"...wherein said base particle is obtained by the steps comprising carrying out spray-drying of a slurry" and

"wherein said base particle has a localized structure in which larger amounts of the water-soluble polymer and/or the water-soluble salt are present near the surface of the base particle rather than in the inner portion thereof"

clearly supports the Applicant's contention that the distinctive localized structure of the base particle recited in claims 1-2 results from the base particle being a spray-dried particle. This type of particle structure (i.e., having a localized structure) is entirely unlike and different from the particle structures of Davies.

Based on such facts and considerations, Applicant's product-by-process language in claims 1-2 must be given proper weight by the Examiner, since MPEP § 2113 specifically states that "structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979)."

Accordingly, based upon the failure of the cited Davies EP '828 reference to teach or otherwise provide any disclosure relating to the use of base particles like those occurring in the present invention, it follows that the same Davies EP '828 reference is incapable of providing any proper foundation for the

asserted rejection under 35 USC § 103(a). As such, the rejection cannot be sustained and must be withdrawn.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of the pending claims 1-2 and 4 are allowable at present.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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